01-T2 - Minecraft Game Mode

CS 4850 – Section 03 – Spring 2025, January 26th

Professor Sharon Perry

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Overview:

KSU Esports hosts an official KSU Minecraft server with over 580 members. The server team hosts game nights and various events, while also updating the Minecraft server. Our objective is to create a new game mode for the Minecraft server utilizing Paper API that runs asynchronous, has an easy-to-use UI, can be maintained after our completion, and most importantly, is enjoyable for the players of the server. Throughout the semester, we will run playtests, bug testing, and updating our GitHub project weekly.

The game mode our team is implementing will be a Tower Defense inspired by the game Bloons Tower Defense 6 with some changes to adapt it to Minecraft and add some personal flair to it.

As established in the Kickoff Meeting with the sponsor, we have reviewed the updated documentation, further clarifying the viable options to pitch for our design, formulated the basic plan of weekly meetings with the sponsor for updates, and joined the Capstone Discord server where major updates will be located. Our team will set up a local server to test changes and once we need testing with multiple people, server-side testing will be supplied. Derek, one of the operators for the KSU Minecraft Server should be referred to for the technical questions.

Project Organization Website: https://github.com/KsuBlocksTD

Commented [BN1]: Do not forget to replace this link with the actual website link when we complete it in the future! For now it is a link to the Organization

Deliverable Milestones:

Preliminary (January 6th – January 19th)   **[3 Weeks]**

- Join KSU Minecraft Discord/Servers
- Research "Paper" (Plug-in)
- Set-up IDEs (IntelliJ with MC Development Plugin)
- Set-up Local Test Environment
- Create working Template Plugin
- GitHub Repository Setup
- Website Setup
- Project Pitch Assignment

General Tasks (January 6th – April 28th)

- Project Selection Assignment
- Project Plan Assignment
- Software Requirements Specification (SRS) & Software Design Document (SDD)
- Development Document
- Software Test Plan (STP) & Software Test Report (STR)
- Final Report & Finalization

Milestone 1 (January 26th – February 16th)   **[4 Weeks]**

- Game Design Document
- Design Command structure and Permissions
- Establish libraries to use (Paper, World Edit, MySQL, etc.)
- Establish Game Mechanics, Rules, Players, Teams, etc.
- Setup plans for the world/map
- (After Approval) Implement Libraries & Build Map
- Get a basic model for the code

Milestone 2 (February 23rd – March 16th)   **[4 Weeks]**

- Verify async compatible processes handled off main thread
- Complete a working prototype for the Game Mode
- Finish building map/world
- Set-up database connections (config options)
- Set-up table creation
- Set-up read/write (if needed)

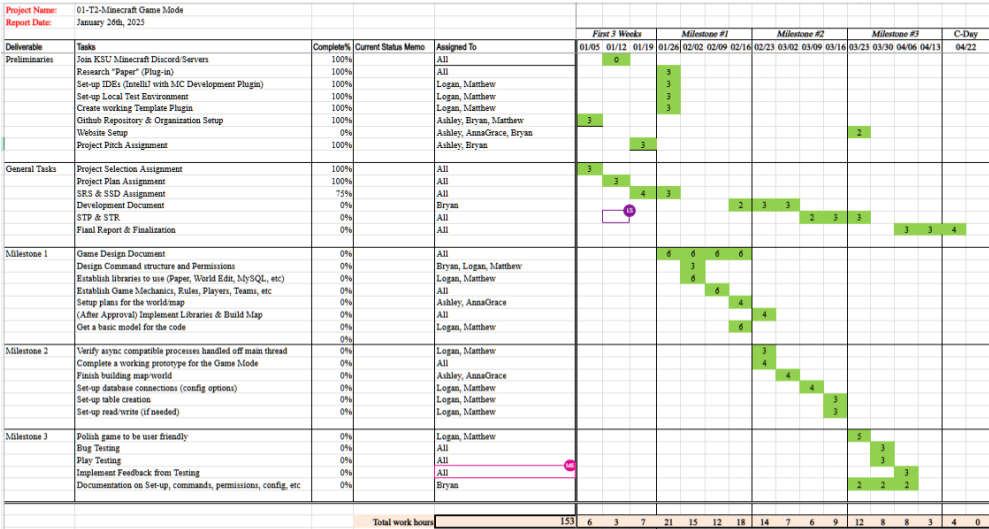**Milestone 3 (March 23rd – April 13th)**   **[4 Weeks]**

- Polish game to be user friendly
- Bug Testing
- Play Testing
- Implement Feedback from Testing
- Documentation on Set-up, commands, permissions, config, etc.

C-Day Application & Submission (April 22nd)

Communication Plan:

- **Every week, on Monday, between 3pm-4pm, we will meet with the Sponsor to establish progress, ask questions, clarify tasks, and review our timeline. The meetings will last from 15 minutes to an hour depending on the time needed.**

- **The team will keep in touch on a daily basis on Discord through our Capstone server. Discussion will occur on the main channel while updates and vital resources will be supplied and documented on their corresponding channels.**

Project Planning (Gantt Chart):

Project Name:	01-T2-Minecraft Game Mode					First 3 Weeks			Milestone #1			Milestone #2			Milestone #3			C-Day
Report Date:	January 26th, 2025																	
						01/05	01/12	01/19	01/26	02/02	02/09	02/16	02/23	03/02	03/09	03/16	03/23	03/30 04/06 04/13	04/22
Deliverable	Tasks	Complete%	Current Status Memo	Assigned To															
Preliminaries	Join KSU Minecraft Discord/Servers	100%		All		0													
	Research "Paper" (Plug-in)	100%		All			3												
	Set-up IDEs (IntelliJ with MC Development Plugin)	100%		Logan, Matthew			3												
	Set-up Local Test Environment	100%		Logan, Matthew			3												
	Create working Template Plugin	100%		Logan, Matthew			3												
	Github Repository & Organization Setup	100%		Ashley, Bryan, Matthew		3													
	Website Setup	0%		Ashley, AnnaGrace, Bryan												2			
	Project Pitch Assignment	100%		Ashley, Bryan				3											
General Tasks	Project Selection Assignment	100%		All		3													
	Project Plan Assignment	100%		All			3												
	SRS & SSD Assignment	75%		All				4	3										
	Development Document	0%		Bryan							2	3	3						
	STP & STR	0%		All			MG						2	3	3				
	Final Report & Finalization	0%		All													3	3	4
Milestone 1	Game Design Document	0%		All					6	6	6	6							
	Design Command structure and Permissions	0%		Bryan, Logan, Matthew						3									
	Establish libraries to use (Paper, World Edit, MySQL, etc)	0%		Logan, Matthew						6									
	Establish Game Mechanics, Rules, Players, Teams, etc	0%		All							6								
	Setup plans for the world/map	0%		Ashley, AnnaGrace								4							
	(After Approval) Implement Libraries & Build Map	0%		All								4							
	Get a basic model for the code	0%		Logan, Matthew								6							
		0%																	
Milestone 2	Verify async compatible processes handled off main thread	0%		Logan, Matthew									3						
	Complete a working prototype for the Game Mode	0%		All									4						
	Finish building map/world	0%		Ashley, AnnaGrace										4					
	Set-up database connections (config options)	0%		Logan, Matthew											4				
	Set-up table creation	0%		Logan, Matthew												3			
	Set-up read/write (if needed)	0%		Logan, Matthew												3			
Milestone 3	Polish game to be user friendly	0%		Logan, Matthew													5		
	Bug Testing	0%		All														3	
	Play Testing	0%		All														3	
	Implement Feedback from Testing	0%		All	MB													3	
	Documentation on Set-up, commands, permissions, config, etc	0%		Bryan													2	2 2	
			Total work hours	153		6	3	7	21	15	12	18	14	7	6	9	12	8 8 3	4 0

Version Control Plan:

Version control is managed on the GitHub organization account, KSUBlocksTD, under the Repository KsuBlocksTD. The project is open-source and publicly available as requested by the Industry Sponsor.